

# **User Manual**



**24 Port PoE 10/100/1000M**

**with 4 Combo Gigabit SFP Open Slot**

**Web Smart Switch**

## **FCC Warning**

This Equipment has been tested and found to comply with the limits for a Class-A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. It may cause harmful interference to radio communications if the equipment is not installed and used in accordance with the instructions. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

## **CE Mark Warning**

This is a Class-A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

# **Content**

---

<b>Content .....</b>	<b>1</b>
<b>Introduction.....</b>	<b>3</b>
Product Overview .....	3
Web Management Features .....	3
Specifications .....	4
Mechanical .....	4
Performance.....	4
Package Contents .....	5
<b>Hardware Description.....</b>	<b>6</b>
Physical Dimensions/ Weight .....	6
Front Panel.....	6
LED Indicators.....	6
Rear Panel .....	7
Hardware Installation.....	7
<b>Software Description.....</b>	<b>8</b>
Login .....	8
Configuration.....	9
System.....	9
Ports .....	11
VLAN .....	12
Aggregation .....	13
LACP .....	13
RSTP .....	14
802.1X .....	16
IGMP Snooping .....	17
Mirroring .....	18
Quality of Service (QoS) .....	19
Filter Configuration .....	23
Power over Ethernet.....	23

Rate Limit Configuration .....	24
Storm Control.....	25
Monitoring .....	26
Statistics Overview.....	26
Detailed Statistics .....	27
LACP Status .....	27
RSTP Status .....	28
IGMP Status.....	30
VeriPHY .....	30
Ping .....	31
Maintenance.....	34
Warm Restart.....	34
Factory Default .....	34
Software upload.....	34
Configuration File Transfer .....	35
Logout.....	35

# Introduction

---

## Product Overview

This switch is a Web Smart Switch equipped with 24-ports PoE 10/100/1000BaseT(X) with 4 combo gigabit SFP open slots. It is designed for easy installation and high performance in an environment where traffic is on the network and the number of users increased continuously. The compact rigid 19" rack-mount size is specifically designed for small to medium workgroups. It can be installed where space is limited; moreover, it provides smooth network migration and is easy to upgrade the network capacity.

In addition, the switch features comprehensive and useful function such as QoS (Quality of Service), Spanning Tree, VLAN, Port Trunking, Bandwidth Control, Port Security, SNMP, IGMP Snooping capability via the intelligent software. It is suitable for both metro-LAN and office application.

## Web Management Features

### ➤ Port Management

Port Configuration

Port Mirroring

Bandwidth Control

Broadcast Strom Control

Power over Ethernet

### ➤ VLAN Setting

Port-based/ Tag-based

### ➤ Trunking

### ➤ QoS Setting

### ➤ Security Setting

802.1X

### ➤ IGMP Snooping

Backup/Recovery Configuration

## Specifications

- Standard
  - IEEE 802.3 10BaseT
  - IEEE 802.3u 100BaseTX
  - IEEE 802.ab 1000BaseT
  - IEEE 802.3af Power over Ethernet
  - IEEE 802.3z 1000BaseSX/LX
  - IEEE 802.3x Flow Control
  - IEEE 802.1x Port-based Network Access Control
  - IEEE 802.1Q VLAN Tagging
  - IEEE 802.3ad Port Aggregation
  - IEEE 802.1d Spanning tree protocol
  - IEEE 802.1w Rapid Spanning tree protocol
  - IEEE 802.1p Class of service, Priority Protocols
- Number of Port
  - 24-port PoE 10/100/1000BaseT(X) + 4 Combo Gigabit SFP Open Slots

## Mechanical

- LED Indicator
  - Per Port: PoE, LINK/ ACT, F1-F4
  - Per Unit: Power
- Power Consumption: 390 Watts (Max)
- Power Input: 100~240V/AC, 50~60HZ
- Product Dimensions/ Weight
  - 45 × 330 × 440 mm (H × W ×D) / 4.8 kg

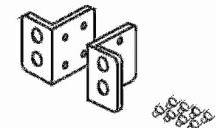
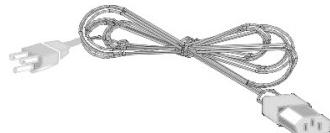
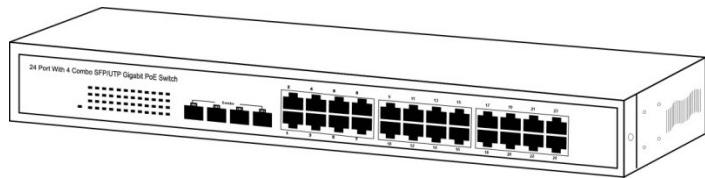
## Performance

- MAC Address: 8K
- Buffer Memory: 500K Bytes
- Jumbo Frames: 9.6K
- Transmission Method: Store and Forward

## Package Contents

Before you start to install this switch, please verify your package that contains the following items:

- One PoE Gigabit Ethernet Switch
- One Power Cord
- CD : User Manual
- Rack-mount kit



# Hardware Description

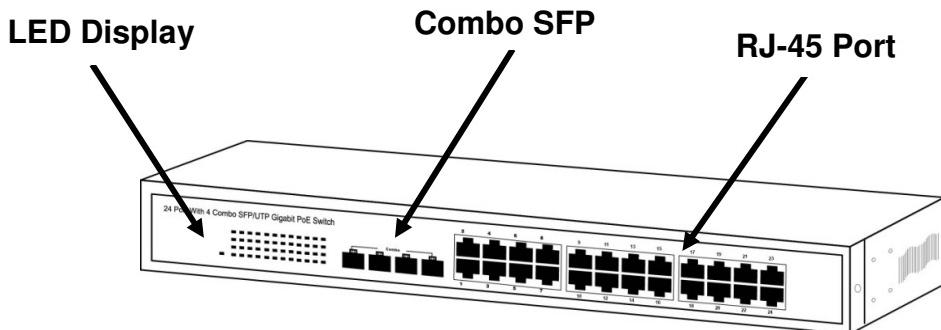
This part primarily presents hardware of the web-smart switch, physical dimensions and functional overview would be described.

## Physical Dimensions/ Weight

45 × 440 × 330 mm (H × W × D) / 4.8 KG

## Front Panel

The front Panel of the web-smart Switch consists of 24-ports PoE 10/100/1000BaseT(X) with 4 combo gigabit SFP open slots. All of LED Indicators are also located on the front panel.

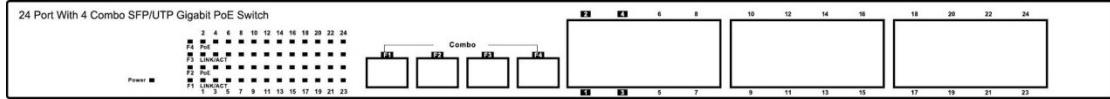


## LED Indicators

All of LED Indicators present real-time information of systematic operation status. The following table provides descriptions of LED status and their meaning. **Note:** SFP (F1-F4) open slot is a combo port shared with normal RJ-45 (port 1-4.)

Table 1-1 LED Indicators

LED	Status	Description
Power	On	Power on
	off	Power off
LINK/ ACT Port 1~24	On	Link
	Flashing	Data activating
PoE Port 1~24	On	Port is linked to Power Device
	Off	No Power Device is connected
F1 - F4	On	SFP module is plugged
	off	No SFP module is plugged



## Rear Panel

The 3-pronged power plug is placed at the rear panel which is on the right side of the switch shown as below.



## Hardware Installation

Set the switch on a large flat space with a power socket close by. The flat space should be clean, smooth, level and sturdy. Make sure there is enough clearance around the switch to allow attachment of cables, power cord and allow air circulation. The last, use twisted pair cable to connect this switch to your PC then user could start to operate the switch.

# **Software Description**

---

This part instructs user how to set up and manage the switch through the web user interface. Please follow the description to understand the procedure.

At the first, open the web browser, and go to 192.168.2.1 site then the user will see the login screen. Key in the password to pass the authentication then clicks the **Apply**. The login process is completed and comes out the sign “Password successfully entered”.

## **Login**

Password: admin

The image shows a login interface. At the top, the text "Please enter password to login" is displayed. Below this, there is a form field labeled "Password:" followed by an empty input box. At the bottom of the form is a blue "Apply" button.

**Password Successfully Entered**

**Figure 1-1**

After the user login, the right side of website shows all functions as Fig. 1-2.

**Figure 1-2**

## Configuration

- System
- Ports
- VLANs
- Aggregation
- LACP
- RSTP
- 802.1X
- IGMP Snooping
- Mirroring
- Quality of Service
- Filter
- Power over Ethernet
- Rate Limit
- Storm Control

## Monitoring

- Statistics Overview
- Detailed Statistics
- LACP Status
- RSTP Status
- IGMP Status
- VeriPHY
- Ping

## Maintenance

- Warm Restart
- Factory Default
- Software Upload
- Configuration File
- Transfer
- Logout

## Configuration

### System

#### System Configuration

This page shows system configuration information. User can configure lots of information as below:

## System Configuration

MAC Address	00-03-ce-07-87-1e
S/W Version	G24 V110525
H/W Version	1.0
Temperature	0 °C
Active IP Address	192.168.2.1
Active Subnet Mask	255.255.255.0
Active Gateway	192.168.2.254
DHCP Server	0.0.0.0
Lease Time Left	0 secs

DHCP Enabled	<input type="checkbox"/>
Fallback IP Address	192.168.2.1
Fallback Subnet Mask	255.255.255.0
Fallback Gateway	192.168.2.254
Management VLAN	1
Name	<input type="text"/>
Password	<input type="password"/>
Inactivity Timeout (secs)	0
SNMP enabled	<input checked="" type="checkbox"/>
SNMP Trap destination	0.0.0.0
SNMP Read Community	public
SNMP Write Community	private
SNMP Trap Community	public

**Figure 2-1**

- MAC Address: Displays the unique hardware address assigned by manufacturer (default).
- S/W Version: Displays the switch's firmware version.
- H/W Version: Displays the switch's Hardware version.
- DHCP Enabled: Click the box to enable DHCP
- Fallback IP address: Manually assign the IP address that the network is using. The default IP is 192.168.2.1
- Fallback Subnet Mask: Assign the subnet mask to the IP address
- Fallback Gateway: Assign the network gateway for industrial switch. The default gateway is 0.0.0.0.
- Management VLAN: ID of a configured VLAN (1-4094) through which you

can manage the switch. By default, all ports on the switch are members of VLAN 1. However, if the management VLAN is changed, the management station must be attached to a port belonging to this VLAN.

- Name: Type in the new user name (The default value is ‘admin’).
- Password: Type in the new password (The default value is ‘admin’).
- SNMP Enabled: Enables or disables SNMP on the switch. Supports SNMP version 1and 2c management clients.
- SNMP Trap Destination: IP address of the trap manager to receive notification messages from this switch. Traps indicating status changes are issued by the switch to specified trap managers. You must specify trap managers so that key events are reported by this switch to your management station.
- SNMP Read Community: A community string that acts like a password and permits access to the SNMP database on this switch.
- SNMP Trap Community: Community string sent with the notification operation.

## **Ports**

Port Security ensures access to a switch port based on MAC address, limits the total number of devices from using a switch port, and protects against MAC flooding attacks.

### Port Configuration

In Port Configuration, you can set and view the operation mode for each port.

- Enable Jumbo Frames: This switch provides more efficient throughput for large sequential data transfers by supporting jumbo frames on Gigabit Ethernet ports up to 9216 bytes. Compared to standard Ethernet frames that run only up to 1.5 KB, using jumbo frames significantly reduces the per-packet overhead required to process protocol encapsulation fields.
- Power Saving Mode: Adjusts the power provided to ports based on the length of the cable used to connect to other devices. Only sufficient power is used to maintain connection requirements.
- Mode: allow user to manually set the port speed such as Auto, 10 half, 10 Full, 100 Half, 100 Full, 1000 Full or Disabled. User may press Apply button to complete the configuration procedure.



**Figure 2-2**

## VLAN

A Virtual LAN (VLAN) is a logical network grouping that limits the broadcast domain, which would allow you to isolate network traffic, so only the members of the same VLAN will receive traffic from the ones of the same VLAN. Basically, creating a VLAN from a switch is logically equivalent of reconnecting a group of network devices to another Layer 2 switch. However, all the network devices are still plugged into the same switch physically.

### Port Segmentation (VLAN) Configuration

- VLAN ID: ID of configured VLAN (1-4094, no leading zeroes).
- VLAN Configuration List: Lists all the current VLAN groups created for this system. Up to 16 VLAN groups can be defined. VLAN 1 is the default untagged VLAN.

**Port Segmentation (VLAN) Configuration**

**Add a VLAN**

VLAN ID	<input type="text"/>
---------	----------------------

**Add**

**VLAN Configuration List**

No VLANs defined.
-------------------

**Modify** **Delete** **Refresh**

**Port Config**

**Figure 2-3**

## Aggregation

Port trunk allows multiple links to be bundled together and act as a single physical link for increased throughput. It provides load balancing, and redundancy of links in a switched inter-network. Actually, the link does not have an inherent total bandwidth equal to the sum of its component physical links. Traffic in a trunk is distributed across an individual link within the trunk in a deterministic method that called a hash algorithm. The hash algorithm automatically applies load balancing to the ports in the trunk. A port failure within the trunk group causes the network traffic to be directed to the remaining ports. Load balancing is maintained whenever a link in a trunk is lost or returned to service.

### Aggregation / Trunking Configuration

To assign a port to a trunk, click the required trunk number, then click Apply.

**Aggregation/Trunking Configuration**

Group\Port	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Normal	<input checked="" type="radio"/>																							
Group 1	<input type="radio"/>	<input type="radio"/>																						
Group 2																								
Group 3																								
Group 4																								
Group 5																								
Group 6																								
Group 7																								
Group 8																								

**Apply** **Refresh**

**Figure 2-4**

## LACP

IEEE 802.3ad Link Aggregation Control Protocol (LACP) increases bandwidth

by automatically aggregating several physical links together as a logical trunk and providing load balancing and fault tolerance for uplink connections.

### LACP Port Configuration

- Port: The port number.
- Enabled: Enables LACP on the associated port.
- Key Value: Configures a port's LACP administration key. The port administrative key must be set to the same value for ports that belong to the same link aggregation group (LAG). If this administrative key is not set when an LAG is formed (i.e., it has the null value of 0), this key will automatically be set to the same value as that used by the LAG.

**LACP Port Configuration**

Port	Protocol Enabled	Key Value
1	<input type="checkbox"/>	auto
2	<input type="checkbox"/>	auto
3	<input type="checkbox"/>	auto
4	<input type="checkbox"/>	auto
5	<input type="checkbox"/>	auto
6	<input type="checkbox"/>	auto
7	<input type="checkbox"/>	auto
8	<input type="checkbox"/>	auto
9	<input type="checkbox"/>	auto
10	<input type="checkbox"/>	auto
11	<input type="checkbox"/>	auto
12	<input type="checkbox"/>	auto
13	<input type="checkbox"/>	auto
14	<input type="checkbox"/>	auto
15	<input type="checkbox"/>	auto
16	<input type="checkbox"/>	auto
17	<input type="checkbox"/>	auto
18	<input type="checkbox"/>	auto
19	<input type="checkbox"/>	auto
20	<input type="checkbox"/>	auto
21	<input type="checkbox"/>	auto
22	<input type="checkbox"/>	auto
23	<input type="checkbox"/>	auto
24	<input type="checkbox"/>	auto

**Figure 2-5**

### **RSTP**

IEEE 802.1w Rapid Spanning tree protocol (LACP) provides a loop-free network and redundant links to the core network with rapid convergence to

ensure faster recovery from failed links, enhancing overall network stability and reliability.

### RSTP System Configuration

- System Priority: This parameter configures the spanning tree priority globally for this switch. The device with the highest priority becomes the STP root device. However, if all devices have the same priority, the device with the lowest MAC address will then become the root device. Number between 0 - 61440 in increments of 4096. Therefore, there are 16 distinct values.
- Hello Time: Interval (in seconds) at which the root device transmits a configuration message (BPDU frame). Number between 1-10 (default is 2).
- Max Age – The maximum time (in seconds) a device can wait without receiving a configuration message before attempting to reconfigure. That also means the maximum life time for a BPDU frame. Number between 6-40 (default is 20).
- Forward Delay: The maximum time (in seconds) the root device will wait before changing states (i.e., discarding to learning to forwarding). Number between 4 – 30 (default is 15).
- Force Version: Set and show the RSTP protocol to use. Normal - use RSTP, Compatible - compatible with STP.

**RSTP System Configuration**

System Priority	0
Hello Time	2
Max Age	20
Forward Delay	15
Force version	Normal
	Compatible
	Normal

**Figure 2-6-1**

### RSTP Port Configuration

- Port: The port ID. It cannot be changed. Aggregations mean any configured trunk group.
- Enabled: Click on the tick-box to enable/disable the RSTP protocol for the port.
- Edge: Expect the port to be an edge port (linking to an end station) or a link

to another STP device.

- Path Cost: This parameter is used by the STP to determine the best path between devices. Therefore, lower values should be assigned to ports attached to faster media, and higher values assigned to ports with slower media. Set the RSTP pathcost on the port. Number between 0 - 200000000. 0 means auto generated pathcost.

RSTP Port Configuration

Port	Protocol Enabled	Edge	Path Cost
Aggregations	<input type="checkbox"/>		
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
9	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
11	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
12	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
13	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
14	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
15	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
16	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
17	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
18	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
19	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
20	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
21	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
22	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
23	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto
24	<input type="checkbox"/>	<input checked="" type="checkbox"/>	auto

Figure 2-6-2

## 802.1X

802.1X provides port-based authentication, which involves communications

between a supplicant, authenticator, and authentication server. Port refers to a single point of attachment to the LAN infrastructure. The supplicant is often software on a client device, such as a laptop; the authenticator is a network device, such as an Ethernet switch or wireless access point; and the authentication server is typically a host running software supporting the RADIUS and EAP protocols.

Port-based Network access control (PNAC) ensures all users are authorized before being granted access to the network. User authentication is carried out using any standard-based RADIUS server.

### 802.1X Configuration

- Mode: Enables or disables 802.1X globally for all ports on the switch. The 802.1X protocol must be enabled globally for the switch before the port settings are active. (Default: Disabled)
- RADIUS IP: Address of authentication server.
- RADIUS UDP Port: Network port of authentication server used for authentication messages. (Range: 1-65535; Default: 1812)
- RADIUS Secret: Sets the text string used for encryption between the switch and the RADIUS server. This key is used to authenticate logon access for the client. Do not use blank spaces in the string. (Maximum length: 48 characters).

### **IGMP Snooping**

IGMP Snooping is the process of listening to IGMP network traffic. IGMP Snooping, as implied by the name, is a feature that allows a layer 2 switch to “listen in” on the IGMP conversation between hosts and routers by processing the layer3 IGMP packets sent in a multicast network.

When IGMP Snooping is enabled in a switch, it analyzes all IGMP packets between hosts connected to the switch and multicast routers in the network. When a switch hears an IGMP report from a host for a given multicast group, the switch adds the host's port number to the multicast list for that group. Moreover, when the switch hears an IGMP Leave, it removes the host's port from the table entry.

Prevents flooding of IP multicast traffic, and limits bandwidth intensive video traffic to only the subscribers.

## IGMP Configuration

- IGMP Enabled: When enabled, the switch will monitor network traffic to determine which hosts want to receive multicast traffic.
- Router Ports: Set if ports are connecting to the IGMP administrative routers.
- Unregistered IPMC Flooding enabled: Set the forwarding mode for unregistered (not-joined) IP multicast traffic. The traffic will flood when enabled, and forward to router-ports only when disabled.
- IGMP Snooping Enabled: When enabled, the port will monitor network traffic to determine which hosts want to receive the multicast traffic.
- IGMP Querying Enabled: When enabled, the port can serve as the Querier, which is responsible for asking hosts if they want to receive multicast traffic.

**IGMP Configuration**

IGMP Enabled	<input type="checkbox"/>
Router Ports	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12 <input type="checkbox"/> 13 <input type="checkbox"/> 14 <input type="checkbox"/> 15 <input type="checkbox"/> 16 <input type="checkbox"/> 17 <input type="checkbox"/> 18 <input type="checkbox"/> 19 <input type="checkbox"/> 20 <input type="checkbox"/> 21 <input type="checkbox"/> 22 <input type="checkbox"/> 23 <input type="checkbox"/> 24
Unregistered IPMC Flooding enabled <input checked="" type="checkbox"/>	
<input type="button" value="VLAN ID"/> <input type="button" value="IGMP Snooping Enabled"/> <input type="button" value="IGMP Querying Enabled"/>	
<input type="button" value="Apply"/> <input type="button" value="Refresh"/>	

**Figure 2-7**

## **Mirroring**

Port Mirroring is used on a network switch to send a copy of network packets seen on one switch port (or an entire VLAN) to a network monitoring connection on another switch port. This is commonly used for network appliances that require monitoring of network traffic, such as an intrusion-detection system.

### Mirroring Configuration

- Port to Mirror to: The port that will “duplicate” or “mirror” the traffic on the source port. Only incoming packets can be mirrored. Packets will be dropped when the available egress bandwidth is less than ingress bandwidth.
- Ports to Mirror: Select the ports that you want to mirror from this section of the page. A port will be mirrored when the “Mirroring Enabled” check-box is checked.

#### Mirroring Configuration

Port	Mirror Source
1	<input type="checkbox"/>
2	<input type="checkbox"/>
3	<input type="checkbox"/>
4	<input type="checkbox"/>
5	<input type="checkbox"/>
6	<input type="checkbox"/>
7	<input type="checkbox"/>
8	<input type="checkbox"/>
9	<input type="checkbox"/>
10	<input type="checkbox"/>
11	<input type="checkbox"/>
12	<input type="checkbox"/>
13	<input type="checkbox"/>
14	<input type="checkbox"/>
15	<input type="checkbox"/>
16	<input type="checkbox"/>
17	<input type="checkbox"/>
18	<input type="checkbox"/>
19	<input type="checkbox"/>
20	<input type="checkbox"/>
21	<input type="checkbox"/>
22	<input type="checkbox"/>
23	<input type="checkbox"/>
24	<input type="checkbox"/>

Mirror Port	1
	1
Apply	Refresh

Figure 2-8

#### Quality of Service (QoS)

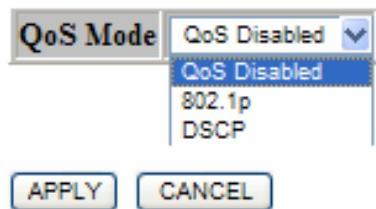
In QoS Mode, select QoS Disabled, 802.1p, or DSCP to configure the related parameters.

#### QoS Configuration

- Strict: Services the egress queues in sequential order, transmitting all traffic in the higher priority queues before servicing lower priority queues.
- WRR: Weighted Round-Robin shares bandwidth at the egress ports by using scheduling weights with default values of 1, 2, 4, 8 for queues 0 through 7, respectively. (This is the default selection.)

※Note: WRR can only be selected if Jumbo Frame mode is disabled on the Port Configuration page

## QoS Configuration



**Figure 2-9-1**

### QoS Mode: QoS Disabled

When the QoS Mode is set to QoS Disabled, the following table is displayed.

### QoS Mode: 802.1p

Packets are prioritized using the 802.1p field in the VLAN tag. This field is three bits long, representing the values 0 - 7. When the QoS Mode is set to 802.1p, the 802.1p Configuration table appears, allowing you to map each of the eight 802.1p values to a local priority queue (low, normal, medium or high). The default settings are shown below.

When the QoS Mode is set to 802.1p, the 802.1p Configuration table is displayed as shown below.

## QoS Configuration

The screenshot shows the "QoS Configuration" dialog with "802.1p" selected in the "QoS Mode" dropdown. The "Prioritize Traffic" dropdown is set to "Custom" (selected). Below is the "802.1p Configuration" table:

802.1p Value	Priority						
0	normal	1	low	2	low	3	normal
4	medium	5	medium	6	high	7	high

Below the table are "APPLY" and "CANCEL" buttons.

**Figure 2-9-2**

802.1p Configuration							
802.1p Value	Priority	802.1p Value	Priority	802.1p Value	Priority	802.1p Value	Priority
0	normal	1	low	2	low	3	normal
4	medium	5	medium	6	high	7	high
							low normal medium high

**APPLY**    **CANCEL**

**Figure 2-9-3**

### QoS Mode: DSCP

DSCP: Packets are prioritized using the DSCP (Differentiated Services Code Point) value. The Differentiated Services Code Point (DSCP) is a six-bit field that is contained within an IP (TCP or UDP) header. The six bits allow the DSCP field to take any value in the range 0 - 63. When QoS Mode is set to DSCP, the DSCP Configuration table is displayed, allowing you to map each of the DSCP values to a hardware output queue (low, normal, medium or high). The default settings map all DSCP values to the high priority egress queue. User can use the Prioritize Traffic drop-down list to quickly set values into the DSCP Configuration table which is a common priority queue. Use Custom if you want to set each value individually.

When the QoS Mode is set to DSCP, the DSCP Configuration table is displayed as shown below.

### QoS Configuration

QoS Mode	DSCP <div style="float: right; margin-top: -20px;">           ▾         </div>																				
Prioritize Traffic	All High Priority <div style="float: right; margin-top: -20px;">           ▾         </div>																				
	Custom																				
	All Low Priority																				
	All Normal Priority																				
	All Medium Priority																				
<b>DSCP Configuration</b>	All High Priority																				
DSCP Value(0-63)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">DSCP Value(0-63)</th> <th style="width: 90%;">Priority</th> </tr> </thead> <tbody> <tr><td> </td><td>high</td></tr> <tr><td>All others</td><td>high</td></tr> </tbody> </table>	DSCP Value(0-63)	Priority		high	All others	high														
DSCP Value(0-63)	Priority																				
	high																				
	high																				
	high																				
	high																				
	high																				
	high																				
	high																				
	high																				
All others	high																				
APPLY	CANCEL																				

**Figure 2-9-4**

<b>DSCP Configuration</b>																					
DSCP Value(0-63)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 10%;">DSCP Value(0-63)</th> <th style="width: 90%;">Priority</th> </tr> </thead> <tbody> <tr><td> </td><td>high</td></tr> <tr><td>All others</td><td>high</td></tr> </tbody> </table>	DSCP Value(0-63)	Priority		high	All others	high														
DSCP Value(0-63)	Priority																				
	high																				
	high																				
	high																				
	high																				
	high																				
	high																				
	high																				
	high																				
All others	high																				
APPLY	CANCEL																				

**Figure 2-9-5**

## Filter Configuration

Filter Configuration				
Port	Source IP Filter			DHCP Server Allowed
	Mode	IP Address	IP Mask	
1	Disabled			<input checked="" type="checkbox"/>
2	Disabled			<input checked="" type="checkbox"/>
3	Disabled			<input checked="" type="checkbox"/>
4	Disabled			<input checked="" type="checkbox"/>
5	Disabled			<input checked="" type="checkbox"/>
6	Disabled			<input checked="" type="checkbox"/>
7	Disabled			<input checked="" type="checkbox"/>
8	Disabled			<input checked="" type="checkbox"/>
9	Disabled			<input checked="" type="checkbox"/>
10	Disabled			<input checked="" type="checkbox"/>
11	Disabled			<input checked="" type="checkbox"/>
12	Disabled			<input checked="" type="checkbox"/>
13	Disabled			<input checked="" type="checkbox"/>
14	Disabled			<input checked="" type="checkbox"/>
15	Disabled			<input checked="" type="checkbox"/>
16	Disabled			<input checked="" type="checkbox"/>
17	Disabled			<input checked="" type="checkbox"/>
18	Disabled			<input checked="" type="checkbox"/>

Figure 2-10

## Power over Ethernet

Power over Ethernet (PoE) is an advanced technology providing a whole new application aspect for networking products. A series of PoE product is powering for wide range of devices, especially useful for VoIP phones, wireless LAN access points and IP cameras.

It is deployed in applications where AC power would be inconvenient, expensive or infeasible to supply. Web Smart features are able to remote control and centralized the power management. Via a current CAT 5 cable, power and data are able to travel though. Not only is it saving costs, but also it meets the demand of energy efficiency.

### PoE Configuration

Remote access and monitor the attached PD (Powered Device) status by using Enable/Disable function.

- PoE Enabled: POE of the port is able to supply power to the attached PD.
- Delivering Power (W): Output power.
- Current (mA): The status of the port current.

Port	PoE Enabled	Delivering Power [W]	Current [mA]
1	<input checked="" type="checkbox"/>	0	0
2	<input checked="" type="checkbox"/>	0	0
3	<input checked="" type="checkbox"/>	0	0
4	<input checked="" type="checkbox"/>	0	0
5	<input checked="" type="checkbox"/>	0	0
6	<input checked="" type="checkbox"/>	0	0
7	<input checked="" type="checkbox"/>	0	0
8	<input checked="" type="checkbox"/>	0	0
9	<input checked="" type="checkbox"/>	0	0
10	<input checked="" type="checkbox"/>	0	0
11	<input checked="" type="checkbox"/>	0	0
12	<input checked="" type="checkbox"/>	0	0
13	<input checked="" type="checkbox"/>	0	0
14	<input checked="" type="checkbox"/>	0	0
15	<input checked="" type="checkbox"/>	0	0
16	<input checked="" type="checkbox"/>	0	0
17	<input checked="" type="checkbox"/>	0	0
18	<input checked="" type="checkbox"/>	0	0
19	<input checked="" type="checkbox"/>	0	0
20	<input checked="" type="checkbox"/>	0	0
21	<input checked="" type="checkbox"/>	0	0
22	<input checked="" type="checkbox"/>	0	0
23	<input checked="" type="checkbox"/>	0	0
24	<input checked="" type="checkbox"/>	0	0

**Figure 2-11**

## Rate Limit Configuration

Select the “Port no.” which you want to configure the mode of the speed.

**Rate Limit Configuration**

Port	Policer	Shaper
1	No Limit ▾	No Limit ▾
2	No Limit ▾	No Limit ▾
3	No Limit ▾	No Limit ▾
4	No Limit ▾	No Limit ▾
5	No Limit ▾	No Limit ▾
6	No Limit ▾	No Limit ▾
7	No Limit ▾	No Limit ▾
8	No Limit ▾	No Limit ▾
9	No Limit ▾	No Limit ▾
10	No Limit ▾	No Limit ▾
11	No Limit ▾	No Limit ▾
12	No Limit ▾	No Limit ▾
13	No Limit ▾	No Limit ▾
14	No Limit ▾	No Limit ▾
15	No Limit ▾	No Limit ▾

**Figure 2-12**

## **Storm Control**

Broadcast storms may occur when a device on your network is malfunctioning, or if application programs are not well designed or properly configured. If there is too much broadcast traffic on your network, performance can be severely degraded or everything can come to complete halt.

You can protect your network from broadcast storms by setting a threshold for broadcast traffic for each port. Any broadcast packets exceeding the specified threshold will then be dropped.

### Storm Control Configuration

There are three types of traffic which can be rate limited, including broadcast multicast frame and Flooded Unicast Rate.

**Storm Control Configuration**

Storm Control Number of frames per second	
Broadcast Rate	No Limit ▾
Multicast Rate	No Limit ▾
Flooded unicast Rate	No Limit ▾

**Figure 2-13-1**

- Enable Rate Limit: Click the check box to enable storm control.
- Rate (number of frames per second): The Rate field is set by a single drop-down list. The same threshold is applied to every port on the switch. When the threshold is exceeded, packets are dropped, irrespective of the flow-control settings.
- Web: Click PORTS, Storm Control. This page enables you to set the broadcast storm control parameters for every port on the switch.

### Storm Control Configuration

Storm Control Number of frames per second	
Broadcast Rate	9910 ▾
Multicast Rate	1982 3964 5946 7928 9910 11892 13874 15856 17838 19820 21802 23874 25766 27748 29730 31712 No Limit
Flooded unicast Rate	
<input type="button" value="Apply"/> <input type="button" value="Refresh"/>	

**Figure 2-13-2**

## Monitoring

### Statistics Overview

Statistic Overview for all ports

User can mirror traffic from any source port to a target port for real-time analysis the following figures shows clearly the statistics overview.

**Statistics Overview for all ports**

Port	Tx Bytes	Tx Frames	Rx Bytes	Rx Frames	Tx Errors	Rx Errors
1	0	0	0	0	0	0
2	61561	102	188464	853	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
10	0	0	0	0	0	0
11	0	0	0	0	0	0
12	0	0	0	0	0	0
13	0	0	0	0	0	0
14	0	0	0	0	0	0
15	0	0	0	0	0	0
16	0	0	0	0	0	0
17	0	0	0	0	0	0
18	0	0	0	0	0	0
19	0	0	0	0	0	0
20	0	0	0	0	0	0
21	0	0	0	0	0	0
22	0	0	0	0	0	0
23	0	0	0	0	0	0
24	0	0	0	0	0	0

**Figure 3-1**

## Detailed Statistics

Statistics for Port 1																	
		Port 1	Port 2	Port 3	Port 4	Port 5	Port 6	Port 7	Port 8	Port 9	Port 10	Port 11	Port 12	Port 13	Port 14	Port 15	Port 16
		Port 17	Port 18	Port 19	Port 20	Port 21	Port 22	Port 23	Port 24								
<b>Receive Total</b>													<b>Transmit Total</b>				
Rx Packets										0	Tx Packets					0	
Rx Octets										0	Tx Octets					0	
Rx High Priority Packets										-	Tx High Priority Packets					-	
Rx Low Priority Packets										-	Tx Low Priority Packets					-	
Rx Broadcast										-	Tx Broadcast					-	
Rx Multicast										-	Tx Multicast					-	
Rx Broadcast and Multicast										-	Tx Broadcast and Multicast					0	
Rx Error Packets										-	Tx Error Packets					0	
<b>Receive Size Counters</b>													<b>Transmit Size Counters</b>				
Rx 64 Bytes										-	Tx 64 Bytes					-	
Rx 65-127 Bytes										-	Tx 65-127 Bytes					-	
Rx 128-255 Bytes										-	Tx 128-255 Bytes					-	
Rx 256-511 Bytes										-	Tx 256-511 Bytes					-	
Rx 512-1023 Bytes										-	Tx 512-1023 Bytes					-	
Rx 1024+ Bytes										-	Tx 1024+ Bytes					-	
<b>Receive Error Counters</b>													<b>Transmit Error Counters</b>				
Rx CRC/Alignment										-	Tx Collisions					-	
Rx Underrun										-	Tx Drops					-	
Rx Oversize										-	Tx Overflow					-	
Rx Fragments										-							
Rx Jumbo										-							
Rx Drops										-							

Figure 3-2

## LACP Status

### LACP Aggregation Overview

LACP Aggregation Overview																													
Group/Port	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24					
Normal	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					
<b>Legend</b>																													
<table border="1"> <tr> <td>■</td><td>Down</td><td>Port link down</td></tr> <tr> <td>■</td><td>Blocked</td><td>Port Blocked by RSTP. Number is Partner port number if other switch has LACP enabled</td></tr> <tr> <td>■</td><td>Learning</td><td>Port Learning by RSTP</td></tr> <tr> <td>■</td><td>Forwarding</td><td>Port link up and forwarding frames</td></tr> <tr> <td>■</td><td>Forwarding</td><td>Port link up and forwarding by RSTP. Number is Partner port number if other switch has LACP enabled</td></tr> </table>															■	Down	Port link down	■	Blocked	Port Blocked by RSTP. Number is Partner port number if other switch has LACP enabled	■	Learning	Port Learning by RSTP	■	Forwarding	Port link up and forwarding frames	■	Forwarding	Port link up and forwarding by RSTP. Number is Partner port number if other switch has LACP enabled
■	Down	Port link down																											
■	Blocked	Port Blocked by RSTP. Number is Partner port number if other switch has LACP enabled																											
■	Learning	Port Learning by RSTP																											
■	Forwarding	Port link up and forwarding frames																											
■	Forwarding	Port link up and forwarding by RSTP. Number is Partner port number if other switch has LACP enabled																											

Refresh

Figure 3-3-1

- Port: The port number.
- Port Active: Shows if the port is a member of an active LACP group.
- Partner Port Number: A list of the ports attached at the remote end of this LAG link member.
- Operational Port Key: Current operational value of the key used by this LAG.

## LACP Port Status

**LACP Port Status**

Port	Protocol Active	Partner Port Number	Operational Port Key
1	no		
2	no		
3	no		
4	no		
5	no		
6	no		
7	no		
8	no		
9	no		
10	no		
11	no		
12	no		
13	no		
14	no		
15	no		
16	no		

**Figure 3-3-2**

## **RSTP Status**

### RSTP VLAN Bridge Overview

**RSTP VLAN Bridge Overview**

VLAN Id	Bridge Id	Hello Time	Max Age	Fwd Delay	Topology	Root Id

**RSTP Port Status**

Port/Group	Vlan Id	Path Cost	Edge Port	P2p Port	Protocol	Port State
Port 1						Non-STP
Port 2						Non-STP
Port 3						Non-STP
Port 4						Non-STP
Port 5						Non-STP
Port 6						Non-STP
Port 7						Non-STP
Port 8						Non-STP
Port 9						Non-STP
Port 10						Non-STP
Port 11						Non-STP
Port 12						Non-STP
Port 13						Non-STP
Port 14						Non-STP
Port 15						Non-STP

**Figure 3-4**

- Hello Time: Interval (in seconds) at which the root device transmits a configuration message.
- Max Age: The maximum time (in seconds) a device can wait without receiving a configuration message before attempting to reconfigure. All device ports (except for designated ports) should receive configuration messages at regular intervals. Any port that ages out STA information (provided in the last configuration message) becomes the designated port for the attached LAN. If it is a root port, a new root port is selected from among the device ports attached to the network.
- Fwd Delay: The maximum time (in seconds) the root device will wait before changing states (i.e., discarding to learning to forwarding). This delay is required because every device must receive information about topology changes before it starts to forward frames. In addition, each port needs time to listen for conflicting information that would make it return to a discarding state; otherwise, temporary data loops might result.
- Topology: Indicates if spanning tree topology is steady or undergoing reconfiguration. (The time required for reconfiguration is extremely short, so no values other than “steady” state are likely to be seen in this field.)
- Root ID: The priority and MAC address of the device in the Spanning Tree that this switch has accepted as the root device. Each port has been connected to the root device.

### RSTP Port Status

- Port/Group: The number of a port or the ID of a static trunk.
- Path Cost: The cost for a packet to travel from this port to the root in the current Spanning Tree configuration. The slower the media, the higher the cost.
- Edge Port: Shows if this port is functioning as an edge port, either through manual selection (see the RSTP Port Configuration table) or auto-detection. Note that if the switch detects another bridge connected to this port, the manual setting for Edge Port will be overridden and the port will be instead of function as a point-to-point connection.
- P2P Port: Shows if this port is functioning as a Point-to-Point connection to exactly one other bridge. The switch can automatically determine if the interface is attached to a point-to-point link or to shared media. If shared media is detected, the switch will assume that it is connected to two or more bridges.
- Protocol: Shows the spanning tree protocol functioning on this port, either

RSTP or STP (that is, STP-compatible mode).

## IGMP Status

### IGMP Status

IGMP Status shows the IGMP Snooping statistics for the whole switch.

- VLAN ID: VLAN ID number.
- Querier: Show whether Querying is enabled.
- Queries transmitted: Show the number of transmitted Query packets.
- Queries received: Show the number of received Query packets.
- v1 Reports: Show the number of received v1 Report packets.
- v2 Reports: Show the number of received v2 Report packets.
- v3 Reports: Show the number of received v2 Report packets.
- v3 Leave: Show the number of v3 leave packets received.

IGMP Status								
VLAN ID	Querier	Queries transmitted	Queries received	v1 Reports	v2 Reports	v3 Reports	v2 Leaves	
12	Active	1	0	0	0	0	0	

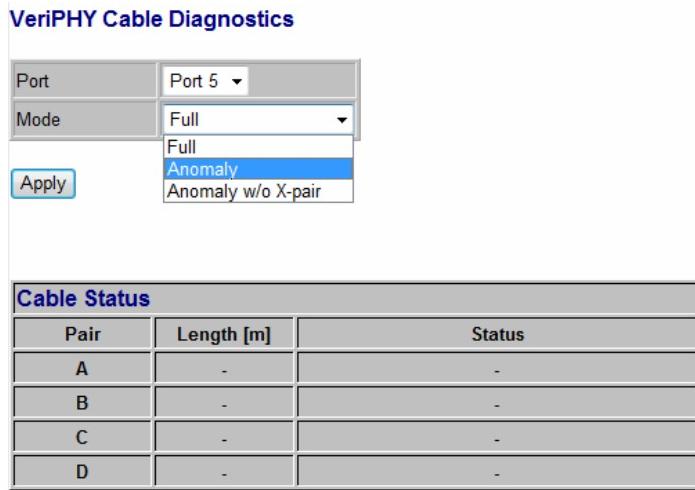
**Figure 3-5**

## VeriPHY

### VeriPHY Cable Diagnostics

User can perform cable diagnostics for all ports or selected ports to diagnose any cable faults (short, open etc..) and feedback a distance to the fault.

- Cable Diagnostics: Cable diagnostics is performed on a per-port basis.  
Select the port number from the drop-down list.
- Cable Status: Shows the cable length, operating conditions and isolates a variety of common faults that can occur on Category 5 twisted pair cabling.



**Figure 3-6**

## Ping

This command sends ICMP echo request packets to another node on the network.

### Ping Parameters

- Target IP Address: IP address of the host
- Count: Number of packets to send. (Range: 1-20)
- Time Out: setting the time period of host will be Ping

Use the ping command to see if another site on the network can be reached.

The following are some results of the **ping** command:

- Normal response: The normal response occurs in one to ten seconds, depending on network traffic.
- Destination does not respond: If the host does not respond, a "timeout" appears in ten seconds.
- Destination unreachable: The gateway for this destination indicates that the destination is unreachable.
- Network or host unreachable: The gateway found no corresponding entry in the route table.

Press <Esc> to stop pinging.

### Ping Parameters

Target IP address	<input type="text"/>
Count	1 ▾
Time Out (in secs)	1 ▾

### Ping Results

Target IP address	0.0.0.0
Status	Test complete
Received replies	0
Request timeouts	0
Average Response Time (in ms)	0

**Figure 3-7-1**

### Ping Parameters

Target IP address	192.168.0.1
Count	1 ▾
Time Out (in secs)	1 5 10 20

### Ping Results

Target IP address	192.168.0.1
Status	Test starting...
Received replies	0
Request timeouts	0
Average Response Time (in ms)	0

**Figure 3-7-2**

**Ping Parameters**

Target IP address	192.168.0.1
Count	1 ▾
Time Out (in secs)	1 ▾
	1
	5
	10
	30

Apply

**Ping Results**

Target IP address	192.168.0.1
Status	Test starting...
Received replies	0
Request timeouts	0
Average Response Time (in ms)	0

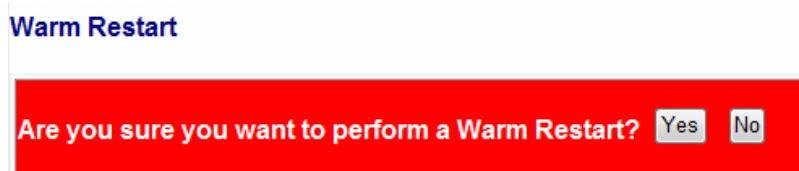
Refresh

**Figure 3-7-3**

## **Maintenance**

### **Warm Restart**

Press “Yes” button to restart the switch, the reset will be complete when the power lights stop blinking.

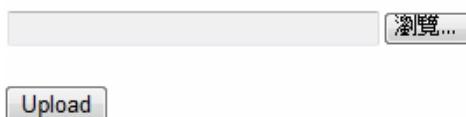


**Figure 4-1**

### **Factory Default**

The switch will be forced back to the original factory settings. To reset the switch, select “Reset to Factory Defaults” from the drop-down list and click “Apply”. The LAN IP Address, Subnet Mask and Gateway IP Address will be reset to their factory default.

### **Software Upload**



**Figure 4-2**

### **Software upload**

Select “Upgrade Firmware” from the Tools drop-down list then click on the “Browse” button to select the firmware file. Click the “APPLY” button to upgrade the selected switch firmware file. User can download firmware files for user’s switch from the Support section of your local supplier.

### **Software Upload**



**Figure 4-3**

## Configuration File Transfer

Configuration file transfer allows you to save the current configuration of the switch or restore a previously saved configuration back to the device. Configuration files can be saved to any location on the web management station. To upload the configuration file to save a configuration or click "Download" to restore a configuration. Use the Browse button to choose a file location on the web management station, or to find a saved configuration file.

### Configuration Upload

### Configuration Download

Figure43-4

## Logout

The administrator has the authority to write and access for all parameters governing the onboard agent. User should therefore assign a new administrator password as soon as possible, and store it in a safe place.

### Please enter password to login

Figure 4-5